REMARKS

In the non-final Office Action, the Examiner rejects claims 13 and 33 on the ground of nonstatutory obviousness-type double patenting as unpatentable over claims 1, 9-11, 13, and 18-20 of PHALTANKAR (U.S. Patent No. 6,714,549); rejects claims 13-15, 18-20, 33-35, 37, and 38 under 35 U.S.C. § 103(a) as unpatentable over BYRNE (U.S. Patent No. 6,229,787) in view of LI et al. (U.S. Patent No. 5,473,599); and objects to claims 16, 17, and 36 as being dependent upon a rejected base claim. Applicant respectfully traverses the above claim rejections.[1]

By way of the present amendment, Applicant cancels claims 21-23 and 39-111 without prejudice or disclaimer. Claims 13-20 and 33-38 are pending.

Allowable subject matter

At the outset, Applicant notes with appreciation the indication that claims 16, 17, and 36 would be allowable if rewritten into independent form to include the features of the base claim and any intervening claims.

Obviousness-type double patenting

Claims 13 and 33 stand rejected on the ground of non-statutory obviousness-type double patenting as allegedly unpatentable over claims 1, 9-11, 13, and 18-20 of PHALTANKAR. While not acquiescing in this rejection, but merely to expedite

[1] As Applicant's remarks with respect to the Examiner's rejections are sufficient to overcome these rejections, Applicants' silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, motivation to combine references, assertions as to dependent claims, etc.) is not a concession by Applicant that such assertions are accurate or such requirements have been met, and Applicant reserves the right to analyze and dispute such assertions/requirements in the future.

prosecution, Applicant submits a Terminal Disclaimer herewith to overcome the double patenting rejection.

For at least the foregoing reasons, Applicant respectfully requests that the double patenting rejection of claims 13 and 33 be reconsidered and withdrawn.

Rejection under 35 U.S.C. § 103(a)

Claims 13-15, 18-20, 33-35, 37, and 38 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over BYRNE in view of LI et al. Applicant respectfully traverses this rejection.

Independent claim 13 is directed to a resilient interface architecture that includes at least two interface switches and at least two interface routers. The at least two interface switches provide connectivity between a subnetwork and a main network, wherein, if one of the switches fails, the connectivity otherwise provided by the failed interface switch is provided by another one of the interface switches. Each interface router is individually coupled to at least one interface switch. The interface routers select a transmission path between the subnetwork and the main network through the interface switches, wherein, if one of the interface routers fails, the selection of transmission paths otherwise provided by the failed interface router is provided by another one of the interface routers. BYRNE and LI et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, BYRNE and LI et al. do not disclose or suggest at least two interface switches that provide connectivity between a subnetwork and a main network, wherein, if one of the switches fails, the connectivity otherwise provided by the failed

interface switch is provided by another one of the interface switches. The Examiner relies on elements 104 and 106 in Fig. 4 of BYRNE as allegedly corresponding to the recited two interface switches, element 108 in Fig. 4 of BYRNE as allegedly corresponding to the recited subnetwork, and the ATM network in Fig. 4 of BYRNE as allegedly corresponding to the recited main network (Office Action, p. 3). Applicant respectfully disagrees with the Examiner's interpretation of BYRNE.

Elements 104 and 106 of BYRNE correspond to ATM switches. Element 108 of BYRNE corresponds to a server. A server is a network device, and not a subnetwork, as that term is known in the art. BYRNE in no way discloses or suggests that server 108 is a subnetwork, as that term is known in the art. If this rejection is maintained, Applicant respectfully requests that the Examiner specifically point out or logically explain how BYRNE's server 108 can reasonably be interpreted as a subnetwork.

BYRNE does not disclose or suggest that ATM switches 104 and 106, which the Examiner alleges correspond to the at least two interface switches recited in claim 13, provide connectivity between a subnetwork and a main network, as would be required by claim 13 based on the Examiner's interpretation of BYRNE. Instead, BYRNE appears to disclose the connection of a server 108 to an edge router 102 through an ATM backbone that includes ATM switches 104 and 106 (see Fig. 4).

Further with respect to the above feature of claim 13, the Examiner further relies on steps 204, 208, 210, and 212 in Fig. 5 and col. 6, lines 10-22, and col. 6, line 42 to col. 7, line 5, of BYRNE (Office Action, pp. 3-4). Applicant respectfully disagrees with the Examiner's interpretation of BYRNE.

Step 204 of BYRNE corresponds to a step of establishing two distinct end-to-end connections (see Fig. 5). Neither this figure of BYRNE nor the description thereof discloses or suggests that ATM switches 104 and 106, which the Examiner alleges correspond to the at least two interface switches recited in claim 13, provide connectivity between a subnetwork and a main network, as would be required by claim 13 based on the Examiner's interpretation of BYRNE. Thus, neither this figure of BYRNE nor the description thereof discloses or suggests at least two interface switches that provide connectivity between a subnetwork and a main network, wherein, if one of the switches fails, the connectivity otherwise provided by the failed interface switch is provided by another one of the interface switches, as recited in claim 13.

Step 208 of BYRNE corresponds to a step of beginning a session over one end-to-end connection (see Fig. 5). Neither this figure of BYRNE nor the description thereof discloses or suggests that ATM switches 104 and 106, which the Examiner alleges correspond to the at least two interface switches recited in claim 13, provide connectivity between a subnetwork and a main network, as would be required by claim 13 based on the Examiner's interpretation of BYRNE. Thus, neither this figure of BYRNE nor the description thereof discloses or suggests at least two interface switches that provide connectivity between a subnetwork and a main network, wherein, if one of the switches fails, the connectivity otherwise provided by the failed interface switch is provided by another one of the interface switches, as recited in claim 13.

Step 210 of BYRNE corresponds to a step of determining if the connection failed (see Fig. 5). Neither this figure of BYRNE nor the description thereof discloses or

suggests that ATM switches 104 and 106, which the Examiner alleges correspond to the at least two interface switches recited in claim 13, provide connectivity between a subnetwork and a main network, as would be required by claim 13 based on the Examiner's interpretation of BYRNE. Thus, neither this figure of BYRNE nor the description thereof discloses or suggests at least two interface switches that provide connectivity between a subnetwork and a main network, wherein, if one of the switches fails, the connectivity otherwise provided by the failed interface switch is provided by another one of the interface switches, as recited in claim 13.

Step 212 of BYRNE corresponds to a step of switching to the remaining connection if the connection is determined to have failed (see Fig. 5). Neither this figure of BYRNE nor the description thereof discloses or suggests that ATM switches 104 and 106, which the Examiner alleges correspond to the at least two interface switches recited in claim 13, provide connectivity between a subnetwork and a main network, as would be required by claim 13 based on the Examiner's interpretation of BYRNE. Thus, neither this figure of BYRNE nor the description thereof discloses or suggests at least two interface switches that provide connectivity between a subnetwork and a main network, wherein, if one of the switches fails, the connectivity otherwise provided by the failed interface switch is provided by another one of the interface switches, as recited in claim 13.

At col. 6, lines 4-24, BYRNE discloses:

> That is, in the case where multiple sessions are to occur between edge switch/router 102 and server 108, a load balancing algorithm running in edge switch/router 102 can utilize either VCC1 or VCC2 as appropriate

> for each session in order to achieve an equal distribution of sessions across the two connection paths.
>
> When a link or switch failure occurs within ATM network 100, the failure is detected by a PNNI update. This notifies the forwarding process that one of the paths has failed. Because the forwarding table maintained by edge switch/router 102 now has multi-path entries in it, i.e., the path entries for the links and intermediate nodes comprising VCC1 and VCC2, the path for the failed link can be marked as invalid. If a current path or session is marked as invalid, then a forwarding process running on edge switch/router 102 chooses the alternate path for forwarding the remainder of the session. There is no need to go though an address resolution phase because the binding between the user's L2/L3 address and the ATM address of server 108 is still valid and there is no need to resignal for a new connection.

This section of BYRNE discloses a forwarding process running on edge switch/router 102 chooses an alternate path for forwarding a remainder of a session when a link or switch failure occurs within ATM network 100. This section of BYRNE does not disclose or suggest that ATM switches 104 and 106, which the Examiner alleges correspond to the at least two interface switches recited in claim 13, provide connectivity between a subnetwork and a main network, as would be required by claim 13 based on the Examiner's interpretation of BYRNE. Thus, this section of BYRNE does not disclose or suggest at least two interface switches that provide connectivity between a subnetwork and a main network, wherein, if one of the switches fails, the connectivity otherwise provided by the failed interface switch is provided by another one of the interface switches, as recited in claim 13.

At col. 6, line 42 to col. 7, line 5, BYRNE discloses:

> In step 204, PNNI is used by edge switch router 102 to establish two distinct end-to-end connections between the source node and the destination node. In one embodiment, the two distinct end-to-end connections do not share any intermediate nodes or any point-to-point

> links. This will provide complete redundancy between the two distinct end-to-end connections. However, those skilled in the art will appreciate that due to network resource limitations and other constraints, such a completely redundant system may not always be feasible. In such cases, it may be required that each of the distinct end-to-end connections share an intermediate node and/or one or more intermediate links. It will be appreciated that if such a configuration is adopted and the shared node or link is the point of failure, no rapid failover as described above would be possible. Nevertheless, in some situations the risk of such a failure at a shared node or link may be acceptable or necessary.
>
> At step 206, the routing information for the two end-to-end connections which were established using PNNI are stored in connection tables in the source node.
>
> At step 208, the user session begins using one of the end-to-end connections. The connection is monitored at step 210 to determine if failure has occurred. If a failure does occur, process 200 moves to step 212 where the source node is notified of the failure and automatically remaps the session to the second end-to-end connection which was established at step 204. In this way, very fast failover is achieved. The failed connection may be torn down as required. The user's session is allowed to complete over the second end-to-end connection and, when the session is over, the second connection is torn down and process 200 quits at step 216.

This section of BYRNE, which corresponds to the process depicted in Fig. 5, discloses that if a failure occurs, the source node automatically remaps the session to a second end-to-end connection. This section of BYRNE does not disclose or suggest that ATM switches 104 and 106, which the Examiner alleges correspond to the at least two interface switches recited in claim 13, provide connectivity between a subnetwork and a main network, as would be required by claim 13 based on the Examiner's interpretation of BYRNE. Thus, this section of BYRNE does not disclose or suggest at least two interface switches that provide connectivity between a subnetwork and a main network, wherein, if one of the switches fails, the connectivity otherwise provided by the failed interface switch is provided by another one of the interface switches, as recited in claim 13.

The disclosure of LI et al. does not remedy the above deficiency in the disclosure of BYRNE.

BYRNE does not further disclose or suggest at least two interface routers, where each interface router is individually coupled to at least one interface switch, and where the interface routers selecting a transmission path between the subnetwork and the main network through the interface switches, wherein, if one of the interface routers fails, the selection of transmission paths otherwise provided by the failed interface router is provided by another one of the interface routers, as also recited in claim 13. The Examiner alleges that elements 102 and 110 in Fig. 4 of BYRNE correspond to the recited interface routers (Office Action, p. 4). Applicant respectfully disagrees with the Examiner's interpretation of BYRNE.

Element 102 in Fig. 4 of BYRNE corresponds to an edge switch/router 102. Element 110 in Fig. 4 of BYRNE corresponds to a router. BYRNE in no way discloses or suggests that router 110 selects a transmission path between a subnetwork and a main network through ATM switches 104 and 106 (which the Examiner alleges correspond to the recited interface switches), as would be required by claim 13 based on the Examiner's interpretation of BYRNE. If this rejection is maintained, Applicant respectfully requests that the Examiner specifically point out where BYRNE discloses that router 110 selects a transmission path between a subnetwork and a main network through ATM switches 104 and 106.

The Examiner admits that BYRNE does not disclose that if one of the interface routers fails, the selection of transmission paths otherwise provided by the failed interface

router is provided by another one of the interface routers (Office Action, p. 4). The Examiner relies on the Abstract of LI et al. for allegedly disclosing this feature (Office Action, p. 4). While not acquiescing in the Examiner's allegation, Applicant submits that one skilled in the art at the time of Applicant's invention would not have been motivated to incorporate this alleged disclosure of LI et al. into the BYRNE system, absent impermissible hindsight.

With respect to motivation, the Examiner alleges:

> it would have been obvious ... so that when one router coupled to the subnetwork fails, the stanby router is applied to share the load with the routers in the subnetwork. The motivation is to flexibility route packet from subnetwork through main network via stanby routers and standby switchs. Congestion is reduced

(Office Action, p. 4). Applicant respectfully disagrees.

BYRNE does not disclose or suggest that edge switch/router 102 and router 110 (which the Examiner alleges correspond to the recited interface routers) are configured in any way to share the load with routers in server 108 (which the Examiner alleges corresponds to the recited subnetwork). In fact, as indicated above, Applicant respectfully submits that it is unreasonable to construe server 108 as a subnetwork. Applicant submits that the Examiner's motivation for combining LI et al. with BYRNE is based on impermissible hindsight.

For at least the foregoing reasons, Applicant submits that claim 13 is patentable over BYRNE and LI et al., whether taken alone or in any reasonable combination.

Claims 14, 15, and 18-20 depend from claim 13. Therefore, these claims are patentable over BYRNE and LI et al., whether taken alone or in any reasonable

combination, for at least the reasons given above with respect to claim 13. Moreover, these claims recite additional features not disclosed or suggested by BYRNE and LI et al.

For example, claim 18 recites a plurality of permanent virtual circuits (PVCs) defining dedicated logical transmission paths from each of the interface routers to each node in the main network through at least one of the interface switches. The Examiner relies on links VCC1 and VCC2 in Fig. 4 of BYRNE for allegedly disclosing this feature (Office Action, p. 5). Applicant respectfully disagrees with the Examiner's interpretation of BYRNE.

BYRNE specifically discloses that VCC1 and VCC2 in Fig. 4 are Switched Virtual Circuits (SVCs) and not Permanent Virtual Circuits (PVCs) (see, for example, col. 5, lines 26-60). Thus, the Examiner cannot rely on VCC1 and VCC2 in Fig. 4 of BYRNE as corresponding to the recited plurality of PVCs. Moreover, BYRNE's VCC1 and VCC2 do not define dedicated logical transmission paths from each of the interface routers to each node in the main network through at least one of the interface switches, as would be required by claim 18 based on the Examiner's interpretation of BYRNE. If this rejection is maintained, Applicant respectfully requests that the Examiner explain how BYRNE's VCC1 and VCC2 could reasonably be construed to correspond to the plurality of PVCs recited in claim 18.

The disclosure of LI et al. does not remedy the above deficiencies in the disclosure of BYRNE.

For at least these additional reasons, Applicant respectfully submits that claim 18 is patentable over BYRNE and LI et al., whether taken alone or in any reasonable combination.

Independent claim 33 recites features similar to (yet possibly of different scope than) features described above with respect to claim 13. Therefore, Applicant submits that claim 33 is patentable over BYRNE and LI et al., whether taken alone or in any reasonable combination, for at least reasons similar to reasons given above with respect to claim 13.

Claims 34, 35, 37 and 38 depend from claim 33. Therefore, these claims are patentable over BYRNE and LI et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 33. Moreover, these claims are patentable over BYRNE and LI et al. for reasons of their own.

For example, claim 37 recites features similar to (yet possibly of different scope than) features described above with respect to claim 18. Therefore, Applicant submits that claim 37 is patentable over BYRNE and LI et al., whether taken alone or in any reasonable combination, for at least reasons similar to reasons given above with respect to claim 18.

In view of the foregoing amendments and remarks, Applicant respectfully requests the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues

arise which could be eliminated through discussions with Applicant's representative, then the Examiner is invited to contact the undersigned by telephone in order to expedite prosecution of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

HARRITY SNYDER, L.L.P.

By: /John E. Harrity, Reg. No. 43367/
John E. Harrity
Registration No. 43,367

Date: November 26, 2007

11350 Random Hills Road
Suite 600
Fairfax, Virginia 22030
(571) 432-0800

Customer Number: 25537